

WHAT IS CLAIMED:

1. A method of forming a washing machine, comprising:
attaching a bearing housing to a rear wall of a tub of the washing machine by injection molding the rear wall of the tub around the bearing housing;
attaching a stator to the rear wall of the tub;
inserting a shaft through the bearing housing; and
attaching a rotor to a first end of the shaft.
2. The method of claim 1, further comprising mounting at least one bearing inside the bearing housing, wherein the step of inserting a shaft through the bearing housing comprises mounting the shaft on the at least one bearing.
3. The method of claim 1, further comprising:
rotatably mounting a drum within the tub of the washing machine; and
attaching the drum to a second end of the shaft.
4. The method of claim 1, wherein the step of attaching a rotor to a first end of the shaft comprises:
attaching the rotor to a connector; and
attaching the connector to the first end of the shaft.

5. The method of claim 4, wherein the step of attaching the connector to the first end of the shaft comprises:

sliding a cylindrical portion of the connector over the first end of the shaft such that ridges and grooves on the cylindrical portion of the connector mate with corresponding ridges and grooves on the first end of the shaft to ensure that the connector and the shaft are rotatably fixed with respect to each other; and

fastening the connector to the shaft with a fastener such that the connector and the shaft are axially fixed with respect to each other.

6. The method of claim 4, wherein the step of attaching the rotor to the connector comprises fastening the rotor to the connector with a plurality of fasteners.

7. The method of claim 6, wherein the step of attaching the rotor to the connector further comprises inserting pins that protrude from the connector into corresponding apertures in the rotor.

8. The method of claim 1, further comprising the step of bending portions of a rear wall of the rotor inward to form apertures in the rear wall, and to form cooling fins on the rotor.

9. The method of claim 1, further comprising the steps of:
attaching a bearing bracket to the exterior of the tub such that the bearing bracket covers the rotor;
mounting a rear bearing in the bearing bracket; and
mounting the first end of the shaft in the rear bearing such that the stator and rotor are positioned between the rear bearing and the rear wall of the tub.

10. The method of claim 9, further comprising a step of mounting a front bearing in the bearing housing, and wherein the step of inserting a shaft through the bearing housing comprises mounting the shaft on the front bearing.

11. The method of claim 9, wherein the step of attaching a rotor to a first end of the shaft comprises:

attaching the rotor to a connector; and
attaching the connector to the first end of the shaft.

12. The method of claim 11, wherein the step of attaching the connector to the first end of the shaft comprises sliding a cylindrical portion of the connector over the first end of the shaft such that ridges and grooves on the cylindrical portion of the connector mate with corresponding ridges and grooves on the first end of the shaft to ensure that the

connector and the shaft are rotatably fixed with respect to each other, and wherein the step of mounting the first end of the shaft in the rear bearing comprises:

sliding the first end of the shaft through the rear bearing; and

fastening the rear bearing to the shaft with a fastener such that the rear bearing and the shaft are axially fixed with respect to each other.

13. The method of claim 12, wherein the step of fastening the rear bearing to the shaft also causes the connector and the shaft to be axially fixed with respect to each other.

14. The method of claim 11, wherein the step of attaching the rotor to the connector comprises fastening the rotor to the connector with a plurality of fasteners.

15. The method of claim 14, wherein the step of attaching the rotor to the connector further comprises inserting pins that protrude from the connector into corresponding apertures in the rotor.

16. A method of forming a washing machine, comprising:
attaching a bearing housing to a rear wall of a tub of the washing machine;
attaching a stator to the rear wall of the tub;
inserting a shaft through the bearing housing;
attaching a rotor to a first end of the shaft;

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attaching a bearing bracket to the rear wall of the tub such that the bearing bracket covers the rotor;

mounting a rear bearing in the bearing bracket; and

mounting the first end of the shaft in the rear bearing such that the stator and rotor are positioned between the rear bearing and the rear wall of the tub.

17. The method of claim 16, further comprising mounting a front bearing in the bearing housing, and wherein the step of inserting the shaft through the bearing housing also comprises mounting the shaft on the front bearing.

18. The method of claim 16, wherein the step of attaching a rotor to a first end of the shaft comprises:

attaching the rotor to a connector;

sliding a cylindrical portion of the connector over the first end of the shaft such that ridges and grooves on the cylindrical portion of the connector mate with corresponding ridges and grooves on the first end of the shaft to ensure that the connector and the shaft are rotatably fixed with respect to each other, and

fastening the rear bearing and the connector to the shaft with a fastener such that the rear bearing, the connector and the shaft are all axially fixed with respect to each other.

19. The method of claim 16, further comprising the step of bending portions of a rear wall of the rotor inward to form apertures in the rear wall, and to form cooling fins on the rotor.

20. The method of claim 16, wherein the step of attaching a bearing housing to a rear wall of a tub comprises injection molding the rear wall of the tub around the bearing housing.